Indiana Department of Education – Division of College & Career Preparation
Indiana Career and Technical Education Course Description and Standards

Information Guide
for
Career and Technical Education Course Assessment Tools

Child Development

July 2012

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During June and July 2012, the team of teachers listed on the cover page developed three standards-based assessment tools for the Indiana high school course, *Child Development* course: (1) **Test Blueprint**, (2) **Content Outline**, and (3) **Bank of Multiple Choice Test Items**. In preparation for their work, team members completed an online tutorial that provided an overview of assessment fundamentals and principles of standards-based assessment, plus guidelines for developing the three assessment tools. The team met in person once, in a day-long work session. The balance of their work was done online through weekly web-conferencing sessions, sharing of information and documents on an online team Worksite, and e-mail communications. The draft materials the team developed were posted on an online review site where other teachers examined them and provided feedback. Team members and project staff used the reviewers' input to revise, finalize, and validate the assessment tools.

In this project, the work was standards-based. The Domains and Standards in the current Indiana Course Framework were the starting-point and continuous foundation for the work. In contrast to standards-referenced efforts that begin with existing materials and then locate matching standards, the team's deliberations started first with the standards, and the assessment tools were developed from there.

The **Test Blueprint** is presented on page 4 of this document. The Blueprint shows the standards-based weighting and item distribution recommended by the team for a statewide course assessment. It is important to distinguish between a test blueprint and the overall course curriculum. The Test Blueprint shows the recommended weighting of a 65-item multiple choice test. This may or may not be the same as the weighting of the course curriculum. Other types of assessment may be more suitable for some of the domains and standards included in the Course Framework. Therefore, a domain that is given less weight in the Test Blueprint could be given more emphasis in the overall course, and student achievement would be locally evaluated using other types of assessment tools.

The **Content Outline** also is provided on the pages that follow. It identifies and describes essential topics related to the course standards. The Content Outline is the team's consensus on the essential topics that should be consistently addressed statewide in the course, and which would be expected to be represented in the statewide assessment. The additional details given in the Content Outline provide a framework for local course design, curriculum, and instruction. The Content Outline also will enhance teacher collaboration and consistency of the course across the state. It is important to note that a content outline is not all-inclusive of the topics addressed in the Course Framework nor in a local course, where additional topics may be included.

The Test Blueprint and Content Outline provided the basis for the third assessment tool the team developed, the **Bank of Multiple Choice Test Items**. The items in this bank are based on the essential topics listed in the Content Outline. Items are distributed across these topics, at three levels of cognitive complexity as further explained on the next page. The four-option multiple choice test items each have one correct answer. A large number of items are included in the bank, enabling each online test to be a unique combination of items selected from the item bank through stratified random sampling based on the weighting indicated in the Test Blueprint. For test security purposes, the bank of test items is controlled by the Indiana Department of Education. An online pretest/posttest course assessment for this course will be provided by the DOE for schools/teachers to use on a voluntary basis beginning in the spring semester of 2013.

Test Items and Levels of Cognitive Complexity

The test items included in the test bank were examined and classified in two ways. First, the items were to focus on an essential topic from the Content Outline. Secondly, the items were to represent varying levels of cognitive complexity, or types of thinking required. The Cognitive Complexity Three Level Framework (Fox & Laing-Kean, 2012) was used to classify the test items based on the three levels shown in the center column of the chart below. This Framework draws on classifications by AAFCS (2010), Fox (2001), and Haladyna (2004). Overall, test items classified as Level 1 focus on recall and understanding of an individual fact or concept. Level 2 items involve combined knowledge of at least two familiar facts or concepts to complete an analysis and reach a conclusion. Level 3 questions require understanding and applying relationships among three or more components and typically involve selecting and/or providing relevant information in order to calculate, predict, or make a judgment.

Revised Bloom's Taxonomy Anderson & Krathwohl	*Cognitive Complexity Three Level Framework*	*Depth of Knowledge* Indiana RISE
Remember	**Level 1 – Facts, Concepts** Known truth or experience. Involves knowledge of individual facts and abilities to identify familiar examples or non-examples.	Level 1 – Recall
Understand		Level 2 – Skill/Concept
Apply	**Level 2 - Procedures** Series of events that lead to a result. Involves remembering and understanding at least two types of information to reach a conclusion.	Level 3 – Strategic Thinking
Analyze		
Evaluate	**Level 3 – Principles** Relationships among rules, theories, methods, concepts, or probabilities. Involves multiple facts, concepts, and procedures to predict events.	Level 4 – Extended Thinking
Create		

W.S. Fox & C.A.M. Laing-Kean, Teach Sharp LLC, 2012

The above chart illustrates the relationships among the Cognitive Complexity Three Level Framework used in this project with the six categories of the Revised Bloom's Taxonomy (Anderson & Krathwohl, 2001) and the four categories of the Depth of Knowledge (DOK) framework used in the Indiana RISE system. As the chart shows, the other two systems are fully accounted for in the Three Level Framework. In particular, it is important to note that Level 1 in the Three Level Framework is more extensive that the DOK Level 1, including much of DOK Level 2. Level 2 of the Three Level Framework includes most of DOK Level 3, and Level 3 of the Three Level Framework is primarily comprised of DOK Level 4. Based on this comparison, the following equivalent notations could be used:

| Level 1 = DOK 1+2 | Level 2 = DOK 2+3 | Level 3 = DOK 3+4 |

References

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Fox, W. S. (2001). *Three-level framework for teaching and learning*. West Lafayette, IN: Department of Curriculum & Instruction, Purdue University.

Haladyna, T. M. (2004). *Developing and validating multiple-choice test items* (3rd ed.). Mahwah, NJ: Lawrence Erlbaum.

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Test Blueprint *Child Development*					
Domain	**Weighting**	**Number of Test Items**			
		Cognitive Levels[1]			**Totals**
		L1	**L2**	**L3**	
1. Personal, Academic, and Career Success	Assessed along with other domains and with other assessment tools.				
2. Conception, Prenatal Development, and Birth	35%	9	7	7	23
3. Growth and Development of Children	35%	9	7	7	23
4. Child Care Giving and Nurturing Practices	25%	6	5	5	16
5. Support Systems for Parents and Caregivers	5%	1	1	1	3
Totals	100%	26	20	19	65

[1]Proportional representation of cognitive levels within in each Domain is based on the Cognitive Complexity Three Level Framework (Fox & Laing Kean, 2012), which is correlated with the Indiana RISE Depth of Knowledge (DOK) framework.

Level 1 - 40%	Level 2 - 30%	Level 3 – 30%
Level 1 = DOK 1+2	Level 2 = DOK 2+3	Level 3 = DOK 3+4

Content Outline

A Content Outline is based on the Indiana Course Framework for a specific course. Each Content Outline was developed by a team of Indiana educators and represents their consensus on the essential topics that should be consistently addressed statewide in the specific course, and which would be expected to be represented in the statewide Assessment. A content outline is not all-inclusive of the topics addressed in the Course Framework or in a local course. Additional topics may be included in a course as time permits, to address student and community interests and needs.

The Content Outline for *Child Development* is presented on the pages that follow.

Content Outline
Child Development

Domain 1 – Personal, Academic, and Career Success	Assessed along with other domains and with other assessment tools.

Core Standard 1:
Integrate processes of thinking, communication, leadership, and management in order to apply child development knowledge and skills.

Standards

CD-1.1   **Demonstrate components of critical thinking, creative thinking, and reasoning**

CD-1.2   **Evaluate effective communication processes in school, family, career, and community settings**

CD-1.3   **Demonstrate leadership that encourages participation and respect for the ideas, perspectives, and contributions of group members**

CD-1.4   **Apply management, decision-making, and problem solving processes to accomplish tasks and fulfill responsibilities**

CD-1.5   **Examine the interrelationships among thinking, communication, leadership, and management processes to address family, community, and workplace issues**

CD-1.6   **Demonstrate fundamentals to career success (e.g. strong work ethic, goal setting, time-management, positive attitude, adaptability/flexibility, stress resilience, accountability, self-discipline, resourcefulness, cooperation, self-assessment)**

CD-1.7   **Apply knowledge gained through research to solve problems and communicate ideas in fields related to child development**

Domain 2 - Conception, Prenatal Development, and Birth	Weighting 35%	Number of Test Items 23

Core Standard 2: Analyze factors related to preparing for the birth of a child.

Standards

CD 2.1   **Examine biological processes related to conception, prenatal development, birth, and health of child and mother**

> *Essential topics*
> 1. *Conception*
>   a. *Process of Conception*
>   b. *Ovulation cycle*
>   c. *Effects of Sexually Transmitted Infections on health of mom and conception*
>   d. *Identical and Fraternal Twins*
>   e. *Options for Infertility*
>
> 2. *Prenatal Development/Pregnancy*
>   a. *Signs of Pregnancy*
>   b. *Functions of amniotic fluid, placenta, and umbilical cord*
>   c. *Stages of Prenatal Development*
>   d. *Trimesters – changes to woman throughout pregnancy*

Content Outline – *Child Development* (July 2012)

   e. *Physical discomforts of pregnancy*
   f. *Miscarriage, stillbirth, and ectopic pregnancy*
   g. *Complications and issues with multiple births and premature babies*
   h. *Effects of Sexually Transmitted Infections on health of newborn*
   i. *Health Care Professionals who care for pregnant women (tested through standard 5.5)*

  3. *Birth*
   a. *Stages of Labor*
   b. *Differences between false and active labor*
   c. *Preterm labor and delivery*
   d. *Vaginal birth, vaginal birth with anesthesia, and cesarean birth*
   e. *Breech Birth*
   f. *Complications and issues with multiple births and premature babies*
   g. *Health Care professionals who deliver babies*

CD 2.2   **Evaluate emotional, and environmental factors of prenatal development and birth in relation to the health of the parents and child**

  Essential topics
  1. *Effects on the pregnancy and child regarding age of mother*

  2. *Effects of Sexually Transmitted Infections on the health of mom and baby (HPV, AIDS, Herpes, Syphilis, Chlamydia, Gonorrhea)*

  3. *Importance of prenatal care throughout pregnancy*

  4. *Causes and influences of Common Birth Defects (Sickle Cell Anemia, Fetal Alcohol Effects and Syndrome, Cerebral Palsy, Down Syndrome, Neuro-tube defect, Cystic Fibrosis, Cleft Palate/Lip, Ty Sachs Disease)*

  5. *Pregnancy complications (Gestational Diabetes, Preeclampsia, Anemia, RH Factor, etc)*

  6. *Environmental influences on the pregnant woman and unborn child*

  7. *Pregnancy weight gain*

  8. *Options for dealing with pregnancy (adoption, abortion, parenting)*

  9. *Newborn testing (Apgar scale, hearing tests, blood tests)*

  10. *Managing stress during pregnancy*

Content Outline – *Child Development* (July 2012)

CD 2.3   **Analyze legal, moral, and ethical impacts of technology related to the birth of a child (e.g., infertility issues, surrogacy, selective abortion due to health of unborn child or multiple births, stem cell usage, and others)**

     Essential topics

1. *Reasons people may choose fertility treatment*

2. *Prenatal Testing (ultrasound, Amniocentesis, Chorionic Villi Sampling, Alpha-fetal Protein, glucose-screening test)*

3. *Legal procedures completed soon after birth for identification*

4. *Multiple births as associated with legal and technological issues*

5. *Hospital Safety after birth of baby*

6. *Cord blood banking*

Domain 3 – Growth and Development of Children	Weighting 35%	Number of Test Items 23
Core Standard 3: Analyze human growth and development from prenatal through age three.		

Standards

CD 3.1   **Survey the history of child development, including prominent theorists**

     Essential topics

1. *Piaget (Stages of Learning)*

2. *Erikson (Human Life Cycle)*

3. *Freud (Effects on Adult Life)*

4. *Childhood Changes*

CD 3.2   **Examine physical, intellectual, emotional, social, and moral domains of human growth and development of children across a range of birth through age 3**

     Essential topics

1. *General Child Development*

     a. *Physical, Social, Emotional, and Intellectual needs of children*

     b. *Characteristics of Children*

     c. *Patterns of Development (head to toe, near to far, etc)*

2. *Infant Physical, Intellectual, Emotional, Social, and Moral Development*

     a. *Bonding between parents and newborns (failure to thrive and attachment building)*

     b. *Physical appearance*

     c. *Height, weight, and proportion*

     d. *Care Skills (diapering, bathing, dressing, and feeding)*

     e. *Developmental Milestones (rolling over, walking, first teeth, first words, etc)*

Content Outline – *Child Development* (July 2012)

> f. *Sensorimotor Stage (hand-mouth coordination, object permanence, imitation)*
> g. *Common Health issues (melia, cradle cap, diaper rash, etc)*

> 3. *Toddler Physical, Intellectual, Emotional, Social, and Moral Development*
>   a. *Height, weight, and proportion of 1-3 year olds*
>   b. *Developmental Milestones (stacking items, turning pages, climbing, throwing, etc.)*
>   c. *Teeth Development and care*
>   d. *Connection of emotional development in forming social development*
>   e. *Emotional concerns (negativism, temper tantrums, self-centered, separation anxiety, empathy, and autonomy)*
>   f. *Language Development*
>   g. *Sensorimotor and beginning of Pre-operational stage of development (hand-eye coordination, symbolic thinking, and sensory integration)*
>   h. *Methods of Learning (incidental, imitation, direct learning, trial and error)*

CD 3.3   **Investigate impacts and relationships of heredity and environment on prenatal and early childhood human growth and development**

> *Essential topics*
> 1. *Heredity*
> 2. *Environment*
> 3. *Risks involved in multiple births*

CD 3.4   **Assess effects of pre-pregnancy, prenatal, and postnatal nutrition on health and wellness of mother and child**

> *Essential topics*
> 1. *Nutrients needed during pregnancy*
> 2. *Foods that should be limited or eliminated during pregnancy*
> 3. *Benefits of Breastfeeding on mom and baby*
> 4. *Introducing Food to Infants*
> 5. *Colic vs Reflux*

Content Outline – *Child Development* (July 2012)

CD 3.5   **Examine how gender, ethnicity, culture and life events impact child development.**

Essential topics
1. *Gender roles as related to child nurturing*

2. *Cultural and ethnical differences in child rearing*

Domain 4 – Child Care Giving and Nurturing Practices	Weighting 25%	Number of Test Items 16
Core Standard 4: Choose care giving practices and nurturing strategies that maximize growth and development of children.		

Standards

CD-4.1   **Apply current and emerging research on human growth and development, including brain research, to assess nurturing practices**

Essential topics
1. *Importance of bonding in newborn brain development*

2. *Effects of positive and negative experiences on brain development*

3. *Stimulating environment on brain development*

4. *Basic nutrition as it relates to brain development*

CD-4.2   **Evaluate communication strategies that promote positive self-esteem in children**

Essential topics
1. *Role of families in teaching positive social development*

2. *Positive vs. Negative reinforcement*

CD-4.3   **Implement nurturing practices that support human growth and development of young children**

Essential topics
1. *Types of play for infant and toddlers (parallel, cooperative, imaginary friends)*

2. *Toy selection and safety*

3. *Benefits of play*

4. *Childhood Immunization*

5. *Clothing needs for infant and toddler development*

6. *Sudden Infant Death Syndrome*

7. *Dangers of Postpartum depression*

8. *Home safety*

9. *Sleep patterns and disturbances during the first 3 years*

Based on the *Child Development* Curriculum Framework, July 2012

Content Outline – *Child Development* (July 2012)

          10. *Toilet teaching*

          11. *Nutritional needs of Toddlers*

          12. *Health and safety of Toddlers*

          13. *Activities to assist in the development of gross and fine motor skills*

CD-4.4   **Analyze impacts of abuse and neglect on children and families and identify methods of prevention**

Essential topics
1. *Shaken Baby Syndrome*

2. *Sleep Hazards*

3. *Abuse Cycle*

4. *Car Safety*

5. *Methods of preventing child abuse and neglect*

Domain 5 – Support Systems for Parents and Caregivers	Weighting 5%	Number of Test Items 3
Core Standard 5: Evaluate support systems that provide services for parents and caregivers.		

Standards
CD-5.1   **Evaluate criteria for selecting and providing care and services, including preventative health care, for children**

Essential topics
1. *Immunization*

2. *Dental health*

3. *How to select a pediatrician*

4. *Selecting child care for young children*

CD-5.2   **Explain the importance of friends, family, and community relationships in supporting parents and caregivers**

Essential topics
1. *Parent support system*

2. *Responsibility of Family in Development of Child*

Based on the *Child Development* Curriculum Framework, July 2012

Content Outline – *Child Development* (July 2012)

CD-5.3   **Describe community resources, services, and opportunities that support parenting and nurturing**

Essential topics
1. *WIC – Women, Infant and Children*

2. *DFS – Division of Family Services*

3. *State Board of Health*

4. *First Steps*

5. *Local Hospital services*

6. *March of Dimes*

CD-5.4   **Analyze current laws, regulations, and policies related to parenting and care giving**

Essential topics
1. *Mandated Reporters on Child Abuse and Neglect – Dept of Child Services (DCS)*

2. *Automobile Restraint laws*

3. *Paternity*

4. *Family and Medical Leave Act*

CD-5.5   **Discuss careers that draw on knowledge of children, child development, and nurturing of children**

Essential topics
1. *Early Childhood Educators*

2. *Medical professionals to assist during pregnancy and childbirth*

3. *Medical professionals to treat young children*